

V. Ocean Monitoring Data Summary

- A. Ocean Sediment Chemistry Data Tables.
- B. Fish Tissue Chemistry Data Tables.

Maps, with sampling sites labeled, are included in this section.

Summary of Sampling Technique⁶:

Sediments

Benthic samples are obtained with a chain-rigged van Veen grab from the City's ocean monitoring program vessels. The grab takes 0.1m² of sediment surface. Only grab samples with an undisturbed sediment surface are used. Only the top 2 cm of sediment material in the van Veen grab is taken for chemical analyses. Subsamples are then placed directly into the appropriate labeled containers and placed on ice for shipment to the laboratory for analysis. Preservatives are used in accordance with the requirements of 40 CFR and our Quality Assurance Plan. Sediment concentrations are based on dry weight of sample.

Fish Tissue

Several species of flatfish and rockfish are collected by otter trawls and/or rig fishing. Dissected muscle and liver tissues from these fish are frozen and delivered to the laboratory for analysis. Tissue samples are kept frozen until prepared for analyses.

⁶ For complete description of the sampling protocols, dissection techniques, equipment, vessels, etc. related to the sampling of ocean sediments and fish, please refer to the City of San Diego, Annual Receiving Waters Monitoring Report for the Point Loma Ocean Outfall 2002.

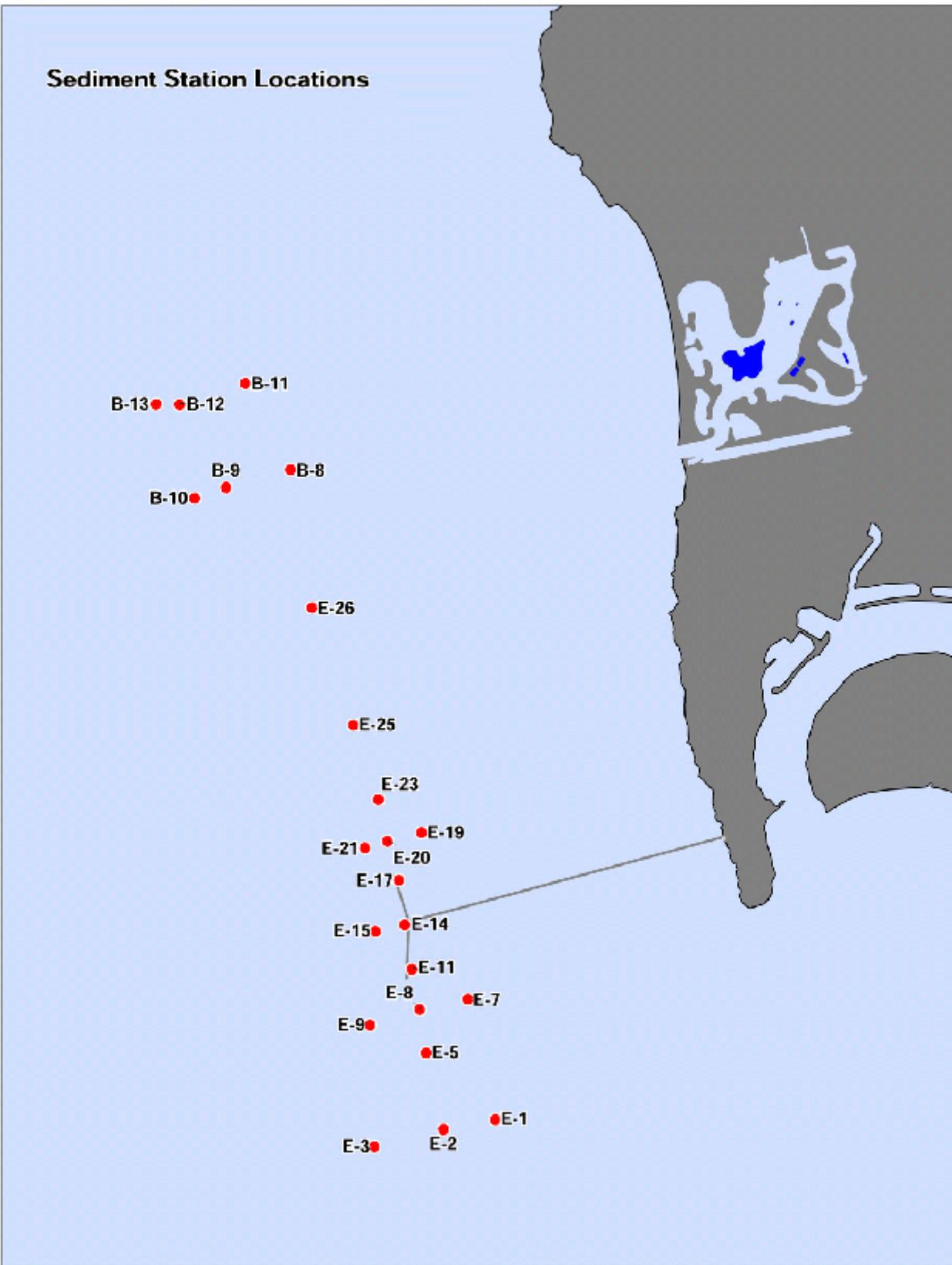
A. Ocean Sediment Chemistries .

The data for Biochemical Oxygen Demand (BOD) and Total Volatile Solids (TVS), all measures of organic enrichment, as well as total sulfides and temperature, are all presented by quarter and averaged. The quarterly particle size analysis does not lend itself to summarization and each quarter's analysis is presented separately. For the data from all the metals, cyanide, radiation and all of the numerous organic priority pollutant analyses (except dioxin, presented by quarter) only the average of the four quarters is presented here; the values for each quarter has been reported in the Quarterly Monitoring Reports and are on file.

Sampling stations may also be identified by either a 3-digit number and/or a letter-number identification code. All "A" stations are 100 series and "B" stations are 200 series designations. For example, the station A-15 is also called 115 and station B-7 would be 207. The 18 benthic stations sampled this year are identified on the preceding map and cross-referenced below. Stations identified with "DUP" were field replicates.

Stations

B-10	E-1	E-2	E-3
B-11	E-11	E-20	E-5
B-12	E-14	E-21	E-7
B-13	E-14 DUP	E-23	E-8
B-8	E-15	E-23 DUP	E-9
B-9	E-17	E-25	
B-9 DUP	E-19	E-26	



San Diego Benthic (ocean sediment) stations.

POINT LOMA WASTEWATER TREATMENT PLANT
SEDIMENT QUARTERLY

From 01-JAN-2002 To 31-DEC-2002

Biochemical Oxygen Demand
(mg/Kg)

STATION	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Average of All Quarters
B-8	203	253	330	260	262
B-9	298	210	221	272	250
B-9 DUP	261	224	307	257	262
B-10	310	301	341	330	321
B-11	349	352	328	392	355
B-12	358	337	382	380	364
B-13	388	307	420	445	390
E-1	348	278	272	255	288
E-2	273	454	234	298	315
E-3	161	318	208	164	213
E-5	326	261	232	261	270
E-7	251	244	299	333	282
E-8	235	183	176	221	204
E-9	620	258	290	249	354
E-11	328	307	285	273	298
E-14	936	427	362	413	535
E-14 DUP	511	382	312	388	398
E-15	232	188	297	324	260
E-17	324	272	285	314	299
E-19	319	312	325	275	308
E-20	270	260	296	319	286
E-21	716	316	278	313	406
E-23	626	237	293	277	358
E-23 DUP	302	267	275	275	280
E-25	251	330	303	275	290
E-26	230	228	269	282	252

ND= not detected

NA= not analyzed

NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
SEDIMENT QUARTERLY

From 01-JAN-2002 To 31-DEC-2002

Sulfides, Total
(mg/Kg)

STATION	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Average of All Quarters
B-8	1.3	6.4	0.1	0.7	2.1
B-9	1.1	3.4	1.2	0.7	1.6
B-9 DUP	1.2	3.8	1.0	0.3	1.6
B-10	0.4	2.6	1.5	0.8	1.3
B-11	8.6	3.8	0.1	8.8	5.3
B-12	1.1	3.0	0.1	1.0	1.3
B-13	1.9	2.3	2.1	3.3	2.4
E-1	1.3	6.5	16.0	1.9	6.4
E-2	1.0	9.8	0.9	0.2	3.0
E-3	2.6	2.3	13.5	0.8	4.8
E-5	4.7	2.5	0.6	0.2	2.0
E-7	3.2	1.7	0.4	1.4	1.7
E-8	1.3	6.4	0.4	2.2	2.6
E-9	1.2	3.5	1.5	0.4	1.7
E-11	6.1	23.9	10.5	4.0	11.1
E-14	5.1	14.4	11.0	19.5	12.5
E-14 DUP	25.4	20.6	12.5	6.4	16.2
E-15	2.7	7.5	0.7	0.9	3.0
E-17	7.3	6.2	2.0	5.7	5.3
E-19	2.1	5.9	1.1	2.6	2.9
E-20	3.5	2.2	0.8	0.8	1.8
E-21	3.4	4.3	5.1	0.3	3.3
E-23	3.4	2.2	21.9	3.0	7.6
E-23 DUP	1.4	1.2	2.1	3.7	2.1
E-25	4.7	3.1	2.0	2.7	3.1
E-26	3.8	5.4	1.3	0.7	2.8

ND= not detected

NA= not analyzed

NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
SEDIMENT QUARTERLY

From 01-JAN-2002 To 31-DEC-2002

Total Volatile Solids
(% Weight)

STATION	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Average of All Quarters
B-8	3.0	2.6	4.2	3.0	3.2
B-9	2.9	2.6	3.8	2.9	3.1
B-9 DUP	3.0	2.6	3.9	2.8	3.1
B-10	2.8	2.4	3.7	2.9	3.0
B-11	3.9	3.7	5.2	4.2	4.3
B-12	3.3	4.1	4.7	3.4	3.9
B-13	3.4	3.1	5.1	4.1	3.9
E-1	2.3	2.6	2.4	2.6	2.5
E-2	2.7	2.9	2.5	2.8	2.7
E-3	2.0	2.2	2.4	1.8	2.1
E-5	2.3	3.0	2.5	2.3	2.5
E-7	2.4	3.0	2.6	2.4	2.6
E-8	2.3	2.6	2.3	2.0	2.3
E-9	3.0	3.2	2.9	2.8	3.0
E-11	2.5	2.6	2.2	2.2	2.4
E-14	2.0	2.3	2.1	2.0	2.1
E-14 DUP	2.2	2.4	2.0	2.1	2.2
E-15	2.3	2.7	2.8	2.3	2.5
E-17	2.0	2.4	2.3	1.8	2.1
E-19	2.6	2.9	3.4	2.6	2.9
E-20	2.2	2.5	3.0	2.1	2.5
E-21	2.5	2.3	2.6	2.3	2.4
E-23	2.4	2.6	2.5	2.4	2.5
E-23 DUP	2.3	2.8	2.5	2.4	2.5
E-25	2.6	2.4	2.6	2.3	2.5
E-26	2.5	2.4	2.6	2.7	2.6

ND= not detected

NA= not analyzed

NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
 Point Loma Ocean Outfall Monitoring Stations
 Particle Size Analysis

From 01-JAN-2002 To 31-MAR-2002

STATION	DATE	PHI >0 PHI >1 PHI >2 PHI >3 PHI >4 PHI <4 PHI <5 PHI <6 PHI <7 PHI <8 PHI <9													Total	%
		=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
B-8	09-JAN-2002	ND	0.00	0.00	5.23	32.00	29.00	12.70	8.74	7.18	4.21	0.90	0.90	99.96		
B-9	09-JAN-2002	ND	0.00	0.58	14.10	38.30	19.50	8.75	7.24	6.44	4.09	0.97	0.97	99.97		
B-9 DUP	09-JAN-2002	ND	0.00	0.00	7.55	48.50	17.80	7.65	7.26	6.38	3.96	0.93	100.03			
B-10	09-JAN-2002	1.20	0.00	0.17	13.60	54.20	11.40	5.20	5.90	5.43	3.46	0.72	101.28			
B-11	09-JAN-2002	4.90	0.12	0.18	8.82	34.50	22.70	10.70	8.66	7.85	5.13	1.25	104.81			
B-12	09-JAN-2002	1.50	4.00	7.31	22.80	26.40	13.20	7.28	6.25	6.14	4.88	1.77	101.53			
B-13	09-JAN-2002	4.05	0.49	6.22	24.90	26.80	13.00	7.40	6.46	6.60	5.62	2.54	104.08			
E-1	07-JAN-2002	11.50	0.15	1.53	13.90	42.90	15.40	8.14	7.35	6.14	3.73	0.72	111.46			
E-2	07-JAN-2002	5.41	0.00	0.97	13.80	30.70	19.80	11.40	9.41	8.12	4.84	0.98	105.43			
E-3	07-JAN-2002	16.80	0.12	1.40	5.16	37.30	26.70	7.17	8.58	8.09	4.63	0.79	116.74			
E-5	07-JAN-2002	ND	0.00	1.05	22.10	41.00	15.40	6.52	5.29	4.78	3.17	0.69	100.00			
E-7	07-JAN-2002	ND	0.00	0.16	11.60	42.40	22.80	8.37	5.91	5.06	3.15	0.63	100.08			
E-8	07-JAN-2002	ND	0.00	0.19	15.50	49.90	15.10	5.87	5.35	4.71	2.80	0.52	99.94			
E-9	08-JAN-2002	8.81	0.28	1.33	13.30	36.10	19.60	8.75	7.42	7.12	4.88	1.25	108.84			
E-11	08-JAN-2002	1.40	0.00	0.00	2.83	70.20	10.80	3.92	4.98	4.39	2.56	0.36	101.44			
E-14	08-JAN-2002	2.35	0.00	0.00	7.84	66.90	9.02	3.78	5.12	4.50	2.47	0.33	102.31			
E-14 DUP	08-JAN-2002	0.99	0.05	0.92	20.40	45.20	15.80	5.64	4.67	4.21	2.65	0.55	101.08			
E-15	08-JAN-2002	3.86	0.00	0.00	30.80	51.00	4.50	4.01	4.02	3.34	2.02	0.30	103.85			
E-17	08-JAN-2002	0.80	0.00	0.48	18.20	45.50	17.00	6.31	5.05	4.36	2.63	0.51	100.84			
E-19	08-JAN-2002	ND	0.00	0.32	9.09	40.00	25.70	9.03	6.53	5.58	3.22	0.59	100.06			
E-20	08-JAN-2002	ND	0.11	0.76	16.10	43.60	19.00	6.82	5.35	4.74	2.95	0.60	100.03			
E-21	08-JAN-2002	ND	0.00	0.00	7.78	56.10	14.00	5.98	6.54	5.69	3.25	0.58	99.92			
E-23	08-JAN-2002	ND	0.00	0.35	12.90	42.90	20.80	7.90	6.17	5.33	3.14	0.58	100.07			
E-23 DUP	08-JAN-2002	ND	0.00	0.00	18.20	48.30	13.80	6.54	5.30	4.55	2.78	0.54	100.01			
E-25	09-JAN-2002	ND	0.00	0.39	12.70	40.70	21.20	8.55	6.48	5.66	3.55	0.71	99.94			
E-26	09-JAN-2002	ND	0.00	0.19	10.40	39.00	22.30	9.44	7.57	6.56	3.86	0.72	100.04			

ND= not detected

NA= not analyzed

NS= not sampled

Fine fraction (<1,000 microns) particle size determinations of marine sediments are performed using a laser light-scattering analyzer. Coarse fraction (particle sizes >1,000 microns) is determined using 1,000 micron sieve, and the coarse fraction (phi >0) is reported as a percent (by weight) of total sample. Fine fraction data is reported as percent distribution and is not normalized with the coarse fraction. Since the coarse fraction is not specifically used for benthic correlation determinations, it is reported for anecdotal use. The data can be normalized by treating the fine fraction phi distributions as the indicated percent of the remaining percentage of sample remaining after sieving. However, the relationship between the coarse and fine distribution percentages are not strictly mass-based. Fine fractions' distribution percents are on population distribution and not mass per se.

POINT LOMA WASTEWATER TREATMENT PLANT
Point Loma Ocean Outfall Monitoring Stations
Particle Size Analysis

From 01-APR-2002 To 30-JUN-2002

STATION	DATE	PHI >0 PHI >1 PHI >2 PHI >3 PHI >4 PHI <4 PHI <5 PHI <6 PHI <7 PHI <8 PHI <9													Total	%
		=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====		
B-8	02-APR-2002	ND	0.00	0.15	7.19	35.60	28.70	11.30	7.15	5.80	3.43	0.63	99.95			
B-9	02-APR-2002	ND	0.00	0.00	1.87	47.30	30.60	4.77	5.85	5.76	3.29	0.56	100.00			
B-9 DUP	02-APR-2002	ND	0.20	1.06	8.39	34.60	29.60	10.20	6.14	5.91	3.41	0.54	100.05			
B-10	02-APR-2002	ND	0.00	1.83	29.30	38.80	10.90	5.27	5.25	4.95	3.15	0.63	100.08			
B-11	02-APR-2002	5.93	0.69	2.57	12.40	28.30	20.90	11.30	9.12	8.15	5.30	1.29	105.95			
B-12	02-APR-2002	2.74	1.86	4.93	20.40	29.20	15.20	8.21	7.03	6.58	4.94	1.73	102.82			
B-13	02-APR-2002	9.34	3.03	7.25	24.80	24.40	11.60	7.64	7.42	7.04	5.06	1.69	109.27			
E-1	04-APR-2002	1.42	0.30	3.57	20.20	32.50	16.80	8.96	7.29	6.11	3.63	0.70	101.48			
E-2	04-APR-2002	ND	0.25	2.76	18.20	31.10	18.20	9.91	8.00	6.77	4.01	0.78	99.98			
E-3	04-APR-2002	ND	3.96	12.30	28.10	21.40	11.20	7.29	6.21	5.43	3.46	0.69	100.04			
E-5	04-APR-2002	10.50	0.00	0.00	36.70	47.40	3.38	3.75	3.71	2.98	1.77	0.26	110.45			
E-7	04-APR-2002	0.77	0.00	0.56	12.70	39.60	22.70	8.72	6.45	5.46	3.22	0.62	100.80			
E-8	04-APR-2002	ND	0.00	0.00	24.70	49.80	9.55	5.15	4.44	3.78	2.28	0.35	100.05			
E-9	04-APR-2002	17.20	0.00	0.59	13.30	37.60	19.80	8.71	7.50	6.98	4.47	1.08	117.23			
E-11	03-APR-2002	ND	0.00	1.08	21.00	43.30	15.70	5.98	5.13	4.59	2.80	0.55	100.13			
E-14	03-APR-2002	ND	0.00	0.86	20.50	44.50	15.30	5.83	5.25	4.60	2.69	0.52	100.05			
E-14 DUP	03-APR-2002	ND	0.00	0.86	22.50	47.30	13.70	4.63	4.22	3.88	2.37	0.47	99.93			
E-15	03-APR-2002	1.07	0.00	0.86	20.20	42.40	15.40	6.40	5.53	5.06	3.36	0.84	101.12			
E-17	03-APR-2002	ND	0.00	0.00	29.40	52.70	5.00	3.94	3.65	3.08	1.91	0.28	99.96			
E-19	03-APR-2002	ND	0.00	0.00	11.00	45.40	21.10	7.94	5.92	5.04	3.02	0.58	100.00			
E-20	03-APR-2002	ND	0.00	0.00	18.60	49.50	13.30	6.10	5.09	4.38	2.66	0.51	100.14			
E-21	02-APR-2002	ND	0.00	0.00	20.50	46.90	12.20	6.08	5.78	5.05	2.95	0.54	100.00			
E-23	03-APR-2002	ND	0.00	0.54	15.00	42.20	19.80	7.45	5.90	5.24	3.26	0.66	100.05			
E-23 DUP	03-APR-2002	ND	0.00	0.00	16.20	46.00	16.30	7.07	5.80	5.00	3.05	0.60	100.02			
E-25	02-APR-2002	0.65	0.00	0.00	3.88	67.30	12.50	4.46	4.98	4.19	2.40	0.33	100.69			
E-26	02-APR-2002	ND	0.00	0.76	14.50	40.00	20.50	8.27	6.50	5.59	3.28	0.61	100.01			

ND= not detected
NA= not analyzed
NS= not sampled

Fine fraction (<1,000 microns) particle size determinations of marine sediments are performed using a laser light-scattering analyzer. Coarse fraction (particle sizes >1,000 microns) is determined using 1,000 micron sieve, and the coarse fraction (phi >0) is reported as a percent (by weight) of total sample. Fine fraction data is reported as percent distribution and is not normalized with the coarse fraction. Since the coarse fraction is not specifically used for benthic correlation determinations, it is reported for anecdotal use. The data can be normalized by treating the fine fraction phi distributions as the indicated percent of the remaining percentage of sample remaining after sieving. However, the relationship between the coarse and fine distribution percentages are not strictly mass-based. Fine fractions' distribution percents are on population distribution and not mass per se.

POINT LOMA WASTEWATER TREATMENT PLANT
Point Loma Ocean Outfall Monitoring Stations
Particle Size Analysis

From 01-JUL-2002 To 30-SEP-2002

PHI >0 PHI >1 PHI >2 PHI >3 PHI >4 PHI <4 PHI <5 PHI <6 PHI <7 PHI <8 PHI <9

STATION	DATE															Total	%
B-8	25-JUL-2002	ND	0.00	0.13	6.34	31.70	28.40	12.70	8.56	6.98	4.20	0.91	99.92				
B-9	25-JUL-2002	ND	0.00	0.00	2.00	69.20	10.30	4.48	5.87	4.85	2.83	0.50	100.03				
B-9 DUP	25-JUL-2002	ND	0.00	0.97	14.50	35.90	20.00	9.54	7.78	6.64	3.96	0.74	100.03				
B-10	25-JUL-2002	ND	0.00	0.00	28.30	44.20	7.97	5.39	5.58	4.86	3.03	0.60	99.93				
B-11	25-JUL-2002	2.64	0.00	0.71	11.40	32.40	20.90	10.70	9.17	8.30	5.28	1.22	102.72				
B-12	25-JUL-2002	3.28	0.38	4.70	18.90	27.90	15.90	9.17	8.50	7.86	5.28	1.41	103.28				
B-13	25-JUL-2002	5.77	0.29	7.03	29.30	25.20	11.20	7.31	7.00	6.56	4.71	1.42	105.79				
E-1	10-JUL-2002	3.34	0.70	6.77	20.40	28.00	18.60	7.93	6.52	6.12	4.01	1.00	103.39				
E-2	10-JUL-2002	5.47	0.60	4.54	16.80	31.30	19.60	7.82	7.04	6.87	4.39	1.05	105.48				
E-3	10-JUL-2002	8.84	0.72	7.51	18.90	22.50	17.00	10.00	8.91	8.11	5.16	1.22	108.87				
E-5	15-JUL-2002	ND	0.00	0.00	27.70	48.90	7.20	4.89	4.51	3.91	2.38	0.46	99.95				
E-7	16-JUL-2002	ND	0.00	0.00	12.40	44.70	19.40	8.18	6.15	5.24	3.27	0.68	100.02				
E-8	16-JUL-2002	0.78	0.00	1.67	21.30	40.40	16.80	6.32	5.33	4.76	2.82	0.55	100.73				
E-9	16-JUL-2002	14.00	0.00	0.00	5.46	56.30	13.80	5.87	7.09	6.59	3.99	0.91	114.01				
E-11	16-JUL-2002	ND	0.00	0.00	23.70	49.10	10.50	4.42	4.64	4.49	2.60	0.50	99.95				
E-14	16-JUL-2002	3.80	0.00	0.00	28.70	51.80	5.54	4.02	4.08	3.50	2.06	0.29	103.79				
E-14 DUP	16-JUL-2002	0.79	0.00	1.00	22.80	45.30	14.20	4.94	4.46	4.16	2.59	0.54	100.78				
E-15	16-JUL-2002	ND	0.00	0.00	23.60	48.10	9.59	5.28	5.32	4.75	2.87	0.57	100.08				
E-17	16-JUL-2002	ND	0.00	0.89	20.10	44.60	15.90	5.56	5.01	4.62	2.75	0.54	99.97				
E-19	23-JUL-2002	ND	0.00	0.21	8.90	37.90	26.30	9.59	7.03	6.02	3.46	0.65	100.06				
E-20	23-JUL-2002	ND	0.00	0.38	13.80	42.30	20.60	7.65	6.06	5.37	3.21	0.63	100.00				
E-21	16-JUL-2002	ND	0.00	0.57	18.40	42.20	16.00	6.76	6.25	5.70	3.45	0.69	100.02				
E-23	26-JUL-2002	0.69	0.00	0.00	15.20	46.50	16.60	7.29	5.73	4.95	3.12	0.65	100.73				
E-23 DUP	26-JUL-2002	ND	0.00	0.46	13.70	42.00	21.50	8.07	5.64	4.78	3.22	0.75	100.12				
E-25	26-JUL-2002	0.56	0.00	0.45	15.30	42.80	20.50	7.56	5.26	4.51	3.03	0.65	100.62				
E-26	26-JUL-2002	0.64	0.00	0.57	18.40	42.20	16.00	6.76	6.25	5.70	3.45	0.69	100.66				

ND= not detected
NA= not analyzed
NS= not sampled

Fine fraction (<1,000 microns) particle size determinations of marine sediments are performed using a laser light-scattering analyzer. Coarse fraction (particle sizes >1,000 microns) is determined using 1,000 micron sieve, and the coarse fraction (phi >0) is reported as a percent (by weight) of total sample. Fine fraction data is reported as percent distribution and is not normalized with the coarse fraction. Since the coarse fraction is not specifically used for benthic correlation determinations, it is reported for anecdotal use. The data can be normalized by treating the fine fraction phi distributions as the indicated percent of the remaining percentage of sample remaining after sieving. However, the relationship between the coarse and fine distribution percentages are not strictly mass-based. Fine fractions' distribution percents are on population distribution and not mass per se.

POINT LOMA WASTEWATER TREATMENT PLANT
Point Loma Ocean Outfall Monitoring Stations
Particle Size Analysis

From 01-OCT-2002 To 31-DEC-2002

STATION	DATE	PHI >0 PHI >1 PHI >2 PHI >3 PHI >4 PHI <4 PHI <5 PHI <6 PHI <7 PHI <8 PHI <9													Total	%
		ND	0.00	0.02	5.99	35.30	30.00	11.60	7.06	5.71	3.61	0.78	100.07			
B-8	03-OCT-2002	ND	0.10	0.68	13.20	40.30	20.20	8.32	6.67	6.08	3.74	0.70	99.99			
B-9 DUP	03-OCT-2002	ND	0.26	0.20	11.80	38.50	20.70	9.33	7.76	6.80	3.94	0.68	99.97			
B-10	03-OCT-2002	0.58	0.00	0.22	20.10	44.40	13.20	6.25	5.91	5.59	3.60	0.74	100.59			
B-11	03-OCT-2002	2.57	3.60	1.78	10.20	27.10	21.60	11.40	9.04	8.29	5.55	1.37	102.50			
B-12	03-OCT-2002	3.44	7.75	4.15	21.90	29.00	13.50	6.80	5.80	5.70	4.25	1.20	103.49			
B-13	03-OCT-2002	9.46	10.70	8.10	25.80	22.40	10.00	6.34	6.05	5.69	3.91	1.04	109.49			
E-1	02-OCT-2002	4.00	3.84	3.10	18.10	29.50	18.20	9.69	7.29	6.04	3.57	0.65	103.98			
E-2	02-OCT-2002	14.60	0.06	5.64	20.40	25.40	19.50	10.70	7.47	6.36	3.78	0.70	114.61			
E-3	02-OCT-2002	3.79	5.65	11.10	29.90	22.60	10.80	6.50	5.22	4.61	3.00	0.61	103.78			
E-5	02-OCT-2002	ND	0.08	1.51	20.40	42.00	17.00	6.32	4.86	4.42	2.83	0.59	100.01			
E-7	03-OCT-2002	ND	0.00	0.56	13.60	41.60	22.70	7.99	5.51	4.71	2.83	0.56	100.06			
E-8	02-OCT-2002	ND	0.09	1.41	21.00	42.90	17.00	6.21	4.54	3.86	2.41	0.52	99.94			
E-9	02-OCT-2002	6.25	0.20	1.93	15.30	37.10	19.20	8.13	6.89	6.41	3.95	0.88	106.24			
E-11	01-OCT-2002	0.94	0.00	0.23	16.90	48.00	17.30	5.94	4.46	3.96	2.64	0.56	100.93			
E-14	02-OCT-2002	42.70	0.00	0.12	11.10	36.10	18.70	10.20	9.75	8.63	4.61	0.69	142.60			
E-14 DUP	02-OCT-2002	ND	0.00	0.05	14.70	48.30	16.10	6.36	5.81	5.16	3.00	0.53	100.01			
E-15	01-OCT-2002	1.59	0.00	0.00	13.50	49.40	16.00	6.25	5.66	5.20	3.35	0.65	101.60			
E-17	01-OCT-2002	ND	0.00	0.14	15.90	50.60	16.50	5.52	4.33	3.82	2.57	0.56	99.94			
E-19	01-OCT-2002	ND	0.00	0.08	7.79	41.70	28.00	8.89	5.37	4.53	2.95	0.73	100.04			
E-20	01-OCT-2002	15.20	0.00	0.59	17.30	44.80	19.00	6.51	4.66	4.00	2.56	0.57	115.19			
E-21	01-OCT-2002	ND	0.00	0.55	17.70	44.70	17.00	6.50	5.25	4.72	3.00	0.63	100.05			
E-23	01-OCT-2002	ND	0.00	0.44	13.20	43.30	22.70	7.60	5.05	4.28	2.73	0.64	99.94			
E-23 DUP	01-OCT-2002	ND	0.00	0.35	13.70	42.30	21.20	7.91	5.74	5.05	3.14	0.64	100.03			
E-25	01-OCT-2002	1.71	0.13	1.32	17.20	40.60	19.60	7.43	5.36	4.71	3.02	0.63	101.71			
E-26	03-OCT-2002	ND	0.14	1.07	15.30	40.50	20.50	7.81	5.78	5.10	3.11	0.61	99.92			

ND= not detected
NA= not analyzed
NS= not sampled

Fine fraction (<1,000 microns) particle size determinations of marine sediments are performed using a laser light-scattering analyzer. Coarse fraction (particle sizes >1,000 microns) is determined using 1,000 micron sieve, and the coarse fraction (phi >0) is reported as a percent (by weight) of total sample. Fine fraction data is reported as percent distribution and is not normalized with the coarse fraction. Since the coarse fraction is not specifically used for benthic correlation determinations, it is reported for anecdotal use. The data can be normalized by treating the fine fraction phi distributions as the indicated percent of the remaining percentage of sample remaining after sieving. However, the relationship between the coarse and fine distribution percentages are not strictly mass-based. Fine fractions' distribution percents are on population distribution and not mass per se.

POINT LOMA WASTEWATER TREATMENT PLANT
SEDIMENT ANNUAL Total Organic Carbon/Total Nitrogen - Standard Stations by Quarter

From 01-JAN-2002 to 31-DEC-2002

Analyte	MDL	Units	B-8	B-9	B-9 DUP	B-10	B-11	B-12	B-13
			Avg	Avg	Avg	Avg	Avg	Avg	Avg
Total Nitrogen	.005	WT%	0.071	0.058	0.063	0.052	0.076	0.059	0.057
Total Organic Carbon	.01	WT%	0.727	0.552	0.589	0.466	1.330	0.477	1.680
Analyte	MDL	Units	E-1	E-2	E-3	E-5	E-7	E-8	E-9
			Avg	Avg	Avg	Avg	Avg	Avg	Avg
Total Nitrogen	.005	WT%	0.057	0.057	0.035	0.049	0.056	0.045	0.052
Total Organic Carbon	.01	WT%	0.561	0.617	0.332	0.541	0.537	0.415	0.491
Analyte	MDL	Units	E-11	E-14	E-14 DUP	E-15	E-17	E-19	E-20
			Avg	Avg	Avg	Avg	Avg	Avg	Avg
Total Nitrogen	.005	WT%	0.044	0.037	0.041	0.048	0.046	0.060	0.050
Total Organic Carbon	.01	WT%	0.600	0.432	0.454	0.499	0.456	0.556	0.470
Analyte	MDL	Units	E-21	E-23	E-23 DUP	E-25	E-26		
			Avg	Avg	Avg	Avg	Avg		
Total Nitrogen	.005	WT%	0.058	0.055	0.057	0.058	0.060		
Total Organic Carbon	.01	WT%	0.520	0.551	0.529	0.524	0.613		

nd=not detected; NS=not sampled; NA=not analyzed

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL OCEAN SEDIMENT - STANDARD
Trace Metals

From: 01-JAN-2002 to: 31-DEC-2002

Source:		B-8	B-9	B-9 DUP	B-10	B-11	B-12	B-13
Date:		2002	2002	2002	2002	2002	2002	2002
Analyte:	MDL	Units	Average	Average	Average	Average	Average	Average
Aluminum	5	MG/KG	14600	11700	10900	8090	11300	8050
Antimony	5	MG/KG	<5.00	<5.00	<5.00	ND	ND	<5.00
Arsenic	.53	MG/KG	4.01	3.61	3.42	2.84	3.64	5.60
Beryllium	.2	MG/KG	ND	ND	ND	ND	ND	ND
Cadmium	.5	MG/KG	ND	ND	ND	<0.50	ND	<0.50
Chromium	3	MG/KG	19.5	19.4	19.6	16.5	20.3	22.3
Copper	2	MG/KG	13.00	11.90	9.70	7.83	11.30	9.20
Iron	3	MG/KG	16100	16800	16400	14000	19100	21900
Lead	5	MG/KG	ND	ND	ND	<5.00	ND	<5.00
Manganese	.48	MG/KG	125.0	111.0	106.0	75.7	121.0	68.5
Mercury	.03	MG/KG	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	3	MG/KG	9.80	6.63	5.55	3.33	6.20	3.45
Selenium	.24	MG/KG	<0.240	<0.240	<0.240	<0.240	<0.240	<0.240
Silver	3	MG/KG	ND	ND	ND	ND	ND	ND
Thallium	10	MG/KG	ND	ND	ND	ND	ND	ND
Tin	12	MG/KG	ND	ND	ND	ND	ND	ND
Zinc	4	MG/KG	34.7	33.5	32.8	28.4	38.5	34.7
Source:		E-1	E-2	E-3	E-5	E-7	E-8	E-9
Date:		2002	2002	2002	2002	2002	2002	2002
Analyte:	MDL	Units	Average	Average	Average	Average	Average	Average
Aluminum	5	MG/KG	11600	13500	12800	9780	11200	9170
Antimony	5	MG/KG	ND	<5.00	5.60	<5.00	<5.00	<5.00
Arsenic	.53	MG/KG	3.03	3.41	3.10	2.95	3.10	2.70
Beryllium	.2	MG/KG	0.47	ND	ND	ND	ND	0.32
Cadmium	.5	MG/KG	ND	ND	ND	<0.50	ND	ND
Chromium	3	MG/KG	15.5	18.7	14.7	14.1	15.3	13.3
Copper	2	MG/KG	12.60	14.70	15.70	10.70	12.20	10.20
Iron	3	MG/KG	13200	15600	14600	11500	12300	10500
Lead	5	MG/KG	5.10	<5.00	ND	<5.00	ND	<5.00
Manganese	.48	MG/KG	101.0	116.0	119.0	89.4	103.0	87.9
Mercury	.03	MG/KG	0.035	0.040	<0.030	<0.030	<0.030	<0.030
Nickel	3	MG/KG	6.25	7.98	6.15	4.95	7.18	5.73
Selenium	.24	MG/KG	<0.240	<0.240	<0.240	<0.240	<0.240	<0.240
Silver	3	MG/KG	<3.00	ND	ND	ND	ND	ND
Thallium	10	MG/KG	ND	ND	<10.0	ND	ND	ND
Tin	12	MG/KG	ND	ND	ND	ND	ND	ND
Zinc	4	MG/KG	31.7	34.6	33.1	25.5	33.3	24.1

ND= not detected
NA= not analyzed
NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL OCEAN SEDIMENT - STANDARD
Trace Metals

From: 01-JAN-2002 to: 31-DEC-2002

Source:		E-11	E-14	E-14 DUP	E-15	E-17	E-19	E-20
Date:		2002	2002	2002	2002	2002	2002	2002
Analyte:	MDL	Units	Average	Average	Average	Average	Average	Average
Aluminum	5	MG/KG	8540	8680	7730	8350	8420	12000
Antimony	5	MG/KG	<5.00	ND	<5.00	<5.00	<5.00	ND
Arsenic	.53	MG/KG	2.81	3.04	3.37	2.53	2.95	3.47
Beryllium	.2	MG/KG	ND	ND	ND	ND	ND	ND
Cadmium	.5	MG/KG	ND	ND	ND	ND	ND	ND
Chromium	3	MG/KG	12.7	14.3	12.6	13.4	13.2	12.5
Copper	2	MG/KG	7.10	10.40	9.45	8.50	8.23	10.90
Iron	3	MG/KG	10500	11600	9830	10100	10100	13800
Lead	5	MG/KG	ND	ND	ND	ND	ND	<5.00
Manganese	.48	MG/KG	80.7	110.0	77.9	78.1	82.0	113.0
Mercury	.03	MG/KG	<0.030	<0.030	<0.030	<0.030	0.030	<0.030
Nickel	3	MG/KG	4.68	8.34	5.80	3.98	4.03	5.88
Selenium	.24	MG/KG	<0.240	<0.240	<0.240	<0.240	<0.240	<0.240
Silver	3	MG/KG	ND	ND	ND	ND	ND	ND
Thallium	10	MG/KG	ND	ND	ND	ND	ND	<10.0
Tin	12	MG/KG	ND	ND	ND	ND	ND	ND
Zinc	4	MG/KG	23.5	27.5	23.2	23.5	23.9	24.9
Source:		E-21	E-23	E-23 DUP	E-25	E-26		
Date:		2002	2002	2002	2002	2002		
Analyte:	MDL	Units	Average	Average	Average	Average	Average	Average
Aluminum	5	MG/KG	9080	10900	10500	10400	10700	
Antimony	5	MG/KG	<5.00	<5.00	<5.00	<5.00	<5.00	
Arsenic	.53	MG/KG	2.91	3.10	3.16	2.87	3.03	
Beryllium	.2	MG/KG	ND	ND	ND	ND	ND	
Cadmium	.5	MG/KG	ND	ND	<0.50	ND	ND	
Chromium	3	MG/KG	13.7	14.9	14.6	13.3	16.0	
Copper	2	MG/KG	8.88	10.60	9.95	9.40	8.98	
Iron	3	MG/KG	11100	12000	12000	12300	13000	
Lead	5	MG/KG	ND	ND	ND	<5.00	<5.00	
Manganese	.48	MG/KG	82.1	97.0	98.1	83.8	99.1	
Mercury	.03	MG/KG	<0.030	<0.030	<0.030	<0.030	<0.030	
Nickel	3	MG/KG	4.90	5.49	7.30	6.13	6.13	
Selenium	.24	MG/KG	<0.240	<0.240	<0.240	<0.240	<0.240	
Silver	3	MG/KG	ND	ND	ND	ND	<3.00	
Thallium	10	MG/KG	ND	ND	ND	ND	ND	
Tin	12	MG/KG	ND	ND	ND	ND	ND	
Zinc	4	MG/KG	25.3	27.4	27.0	23.7	29.0	

ND= not detected NA= not analyzed NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
SEDIMENT ANNUAL Chlorinated Pesticide Analysis - STANDARD STATIONS

From 01-JAN-2002 to 31-DEC-2002

Analyte	MDL	Units	B-8	B-9	B-9	DUP	B-10	B-11	B-12	B-13	E-1
			2002	2002	2002	2002	2002	2002	2002	2002	2002
Aldrin	7700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	15000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	1900	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDE	3800	NG/KG	<3800	<3800	<3800	<3800	<3800	ND	<3800	E468	
p,p-DDT	11000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDD	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDE	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDT	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Chlordene	1400	NG/KG	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordene	120	NG/KG	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxychlordane	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans Nonachlor	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis Nonachlor	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	19000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	7600	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	15000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	15000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin + Dieldrin	15000	NG/KG	0	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	5700	NG/KG	0	0	0	0	0	0	0	0	0
DDT and derivatives	11000	NG/KG	0	0	0	0	0	0	0	0	468
Chlordane + related cmpds.	5700	NG/KG	0	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	19000	NG/KG	0	0	0	0	0	0	0	0	468

nd=not detected; NS=not sampled; NA=not analyzed

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

POINT LOMA WASTEWATER TREATMENT PLANT
SEDIMENT ANNUAL Chlorinated Pesticide Analysis - STANDARD STATIONS

From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	Average	Average	Average						
			E-2 2002	E-3 2002	E-5 2002	E-7 2002	E-8 2002	E-9 2002	E-11 2002	E-14 2002	
Aldrin	7700	NG/KG	ND	ND	ND						
Dieldrin	15000	NG/KG	ND	ND	ND						
BHC, Alpha isomer	3800	NG/KG	ND	ND	ND						
BHC, Beta isomer	5700	NG/KG	ND	ND	ND						
BHC, Gamma isomer	1900	NG/KG	ND	ND	ND						
BHC, Delta isomer	3800	NG/KG	ND	ND	ND						
p,p-DDD	3800	NG/KG	ND	ND	ND						
p,p-DDE	3800	NG/KG	<3800	ND	<3800	<3800	<3800	<3800	<3800	<3800	<3800
p,p-DDT	11000	NG/KG	ND	ND	ND						
o,p-DDD	5700	NG/KG	ND	ND	ND						
o,p-DDE	5700	NG/KG	ND	ND	ND						
o,p-DDT	3800	NG/KG	ND	ND	ND						
Heptachlor	5700	NG/KG	ND	ND	ND						
Heptachlor epoxide	5700	NG/KG	ND	ND	ND						
Alpha (cis) Chlordane	5700	NG/KG	ND	ND	ND						
Gamma (trans) Chlordane	3800	NG/KG	ND	ND	ND						
Alpha Chlordene	1400	NG/KG	NA	NA	NA						
Gamma Chlordene	120	NG/KG	NA	NA	NA						
Oxychlordane	5700	NG/KG	ND	ND	ND						
Trans Nonachlor	3800	NG/KG	ND	ND	ND						
Cis Nonachlor	3800	NG/KG	ND	ND	ND						
Alpha Endosulfan	5700	NG/KG	ND	ND	ND						
Beta Endosulfan	5700	NG/KG	ND	ND	ND						
Endosulfan Sulfate	19000	NG/KG	ND	ND	ND						
Endrin	7600	NG/KG	ND	ND	ND						
Endrin aldehyde	15000	NG/KG	ND	ND	ND						
Mirex	5700	NG/KG	ND	ND	ND						
Methoxychlor	15000	NG/KG	ND	ND	ND						
Aldrin + Dieldrin	15000	NG/KG	0	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	5700	NG/KG	0	0	0	0	0	0	0	0	0
DDT and derivatives	11000	NG/KG	0	0	0	0	0	0	0	0	0
Chlordane + related cmpds.	5700	NG/KG	0	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	19000	NG/KG	0	0	0	0	0	0	0	0	0

nd=not detected; NS=not sampled; NA=not analyzed
E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

POINT LOMA WASTEWATER TREATMENT PLANT
SEDIMENT ANNUAL Chlorinated Pesticide Analysis - STANDARD STATIONS

From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	E-14 2002	DUP 2002	E-15 2002	E-17 2002	E-19 2002	E-20 2002	E-21 2002	E-23 2002	E-23 DUP 2002
Aldrin	7700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	15000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	1900	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDE	3800	NG/KG	<3800	ND	ND	<3800	ND	<3800	<3800	<3800	<3800
p,p-DDT	11000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDD	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDE	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDT	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Chlordene	1400	NG/KG	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordene	120	NG/KG	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxychlordane	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans Nonachlor	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis Nonachlor	3800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	19000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	7600	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	15000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	5700	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	15000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin + Dieldrin	15000	NG/KG	0	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	5700	NG/KG	0	0	0	0	0	0	0	0	0
DDT and derivatives	11000	NG/KG	0	0	0	0	0	0	0	0	0
Chlordane + related cmpds.	5700	NG/KG	0	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	19000	NG/KG	0	0	0	0	0	0	0	0	0

nd=not detected; NS=not sampled; NA=not analyzed
E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

POINT LOMA WASTEWATER TREATMENT PLANT
SEDIMENT ANNUAL Chlorinated Pesticide Analysis - STANDARD STATIONS

From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	E-25	E-26
			2002	2002
Aldrin	7700	NG/KG	ND	ND
Dieldrin	15000	NG/KG	ND	ND
BHC, Alpha isomer	3800	NG/KG	ND	ND
BHC, Beta isomer	5700	NG/KG	ND	ND
BHC, Gamma isomer	1900	NG/KG	ND	ND
BHC, Delta isomer	3800	NG/KG	ND	ND
p,p-DDD	3800	NG/KG	ND	ND
p,p-DDE	3800	NG/KG	<3800	<3800
p,p-DDT	11000	NG/KG	ND	ND
o,p-DDD	5700	NG/KG	ND	ND
o,p-DDE	5700	NG/KG	ND	ND
o,p-DDT	3800	NG/KG	ND	ND
Heptachlor	5700	NG/KG	ND	ND
Heptachlor epoxide	5700	NG/KG	ND	ND
Alpha (cis) Chlordane	5700	NG/KG	ND	ND
Gamma (trans) Chlordane	3800	NG/KG	ND	ND
Alpha Chlordene	1400	NG/KG	NA	NA
Gamma Chlordene	120	NG/KG	NA	NA
Oxychlordane	5700	NG/KG	ND	ND
Trans Nonachlor	3800	NG/KG	ND	ND
Cis Nonachlor	3800	NG/KG	ND	ND
Alpha Endosulfan	5700	NG/KG	ND	ND
Beta Endosulfan	5700	NG/KG	ND	ND
Endosulfan Sulfate	19000	NG/KG	ND	ND
Endrin	7600	NG/KG	ND	ND
Endrin aldehyde	15000	NG/KG	ND	ND
Mirex	5700	NG/KG	ND	ND
Methoxychlor	15000	NG/KG	ND	ND
Aldrin + Dieldrin	15000	NG/KG	0	0
Hexachlorocyclohexanes	5700	NG/KG	0	0
DDT and derivatives	11000	NG/KG	0	0
Chlordane + related cmpds.	5700	NG/KG	0	0
Chlorinated Hydrocarbons	19000	NG/KG	0	0

nd=not detected; NS=not sampled; NA=not analyzed
E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

B. Fish Tissue Data.

Fish were taken from the following stations during 2001. The fish were dissected, preserved by freezing, and each sample analyzed for PAHs, trace metals, chlorinated pesticides and PCBs. Lipids and total solids were also determined for each liver sample.

The reported values are annual averages. Results for individual sampling events are contained in the previously published quarterly reports.

<u>Station</u>	<u>Station</u>
RF-1	SD-7
RF-2	SD-8
	SD-9
	SD-10
	SD-11
	SD-12
	SD-13
	SD-14



San Diego Rig Fishing and Trawl Stations

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL FISH TISSUE - LIVER
Trace Metals

From: 01-JAN-2002 to: 31-DEC-2002

Source:		SD-7	SD-9	SD-10	SD-11	SD-12	SD-13	SD-14
Date:		2002	2002	2002	2002	2002	2002	2002
Analyte:	MDL	Units	Average	Average	Average	Average	Average	Average
Aluminum	2.6	MG/KG	9.98	9.45	14.90	2.83	2.68	7.03
Antimony	3.7	MG/KG	ND	<3.70	ND	ND	ND	<3.70
Arsenic	1.4	MG/KG	10.90	8.13	4.94	3.75	2.77	5.44
Beryllium	.035	MG/KG	ND	ND	ND	ND	ND	<0.04
Cadmium	.34	MG/KG	1.54	1.86	2.25	2.05	0.79	2.50
Chromium	.3	MG/KG	0.30	ND	3.93	ND	ND	<0.30
Copper	.76	MG/KG	12.00	9.45	21.70	17.60	13.10	25.40
Iron	1.3	MG/KG	137	141	131	152	111	145
Lead	2.5	MG/KG	ND	ND	ND	<2.50	ND	<2.50
Manganese	.23	MG/KG	0.84	0.86	1.20	0.46	0.30	0.38
Mercury	.03	MG/KG	0.081	0.063	0.062	0.128	0.144	0.085
Nickel	.79	MG/KG	ND	ND	3.15	ND	ND	ND
Selenium	.65	MG/KG	1.46	1.70	0.73	1.43	1.13	1.46
Silver	.62	MG/KG	ND	<0.62	<0.62	ND	ND	ND
Thallium	5.7	MG/KG	ND	ND	ND	ND	ND	ND
Tin	4.6	MG/KG	ND	ND	ND	ND	ND	ND
Zinc	.58	MG/KG	34.5	39.6	47.9	62.9	47.2	74.0
Total Solids	.4	WT%	44.9	40.5	52.2	47.4	50.3	46.5
								54.7

Source:		SD-17	SD-18	SD-19	SD-20	SD-21	RF-1	RF-2
Date:		2002	2002	2002	2002	2002	2002	2002
Analyte:	MDL	Units	Average	Average	Average	Average	Average	Average
Aluminum	2.6	MG/KG	9.81	9.67	8.90	17.90	<2.60	9.30
Antimony	3.7	MG/KG	ND	ND	ND	ND	ND	ND
Arsenic	1.4	MG/KG	2.67	9.61	6.29	5.80	2.10	<1.40
Beryllium	.035	MG/KG	ND	ND	ND	ND	<0.04	<0.04
Cadmium	.34	MG/KG	3.11	6.83	3.04	1.45	1.27	2.85
Chromium	.3	MG/KG	ND	ND	<0.30	ND	ND	<0.30
Copper	.76	MG/KG	23.10	6.65	19.30	14.30	12.60	8.86
Iron	1.3	MG/KG	161	99	101	134	70	56
Lead	2.5	MG/KG	ND	ND	ND	ND	ND	ND
Manganese	.23	MG/KG	0.68	1.07	1.06	1.07	1.13	0.38
Mercury	.03	MG/KG	0.148	0.178	0.149	0.106	0.073	0.356
Nickel	.79	MG/KG	ND	ND	ND	ND	ND	ND
Selenium	.65	MG/KG	0.94	0.96	0.79	0.84	0.58	1.28
Silver	.62	MG/KG	<0.62	<0.62	<0.62	ND	ND	ND
Thallium	5.7	MG/KG	ND	ND	ND	ND	ND	ND
Tin	4.6	MG/KG	ND	22.10	ND	ND	ND	ND
Zinc	.58	MG/KG	90.0	51.9	54.5	59.1	42.3	48.5
Total Solids	.4	WT%	41.8	32.5	37.3	42.0	40.9	46.4
								47.1

nd= not detected
NA= not analyzed
NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL FISH TISSUE - MUSCLE
Trace Metals

From: 01-JAN-2002 to: 31-DEC-2002

Source:		SD-7	SD-8	SD-9	SD-10	SD-11	SD-12	SD-13
Date:		2002	2002	2002	2002	2002	2002	2002
Analyte:	MDL	Units	Average	Average	Average	Average	Average	Average
Aluminum	2.6	MG/KG	4.58	5.18	3.13	10.50	<2.60	<2.60
Antimony	3.7	MG/KG	ND	ND	ND	ND	ND	ND
Arsenic	1.4	MG/KG	8.80	6.30	9.33	3.96	6.38	4.70
Beryllium	.035	MG/KG	ND	ND	ND	ND	ND	ND
Cadmium	.34	MG/KG	ND	ND	ND	ND	ND	ND
Chromium	.3	MG/KG	ND	ND	ND	<0.30	ND	<0.30
Copper	.76	MG/KG	0.78	1.18	<0.76	2.13	1.04	<0.76
Iron	1.3	MG/KG	2.07	4.04	2.72	3.94	4.18	1.77
Lead	2.5	MG/KG	ND	ND	ND	ND	ND	ND
Manganese	.23	MG/KG	ND	ND	ND	ND	ND	<0.23
Mercury	.03	MG/KG	0.070	0.067	0.066	0.136	0.123	0.066
Nickel	.79	MG/KG	ND	ND	ND	ND	ND	ND
Selenium	.43	MG/KG	0.380	0.630	0.330	<0.330	0.350	0.370
Silver	.62	MG/KG	ND	ND	<0.62	ND	ND	ND
Thallium	5.7	MG/KG	ND	ND	ND	ND	ND	ND
Tin	4.6	MG/KG	ND	ND	ND	ND	ND	ND
Zinc	.58	MG/KG	3.11	3.24	3.26	3.65	2.99	2.40
Total Solids	.4	WT%	20.3	19.9	20.5	21.0	21.0	20.3
								19.9

Source:		SD-14	RF-1	RF-2	RF-4
Date:		2002	2002	2002	2002
Analyte:	MDL	Units	Average	Average	Average
Aluminum	2.6	MG/KG	2.93	8.54	3.02
Antimony	3.7	MG/KG	ND	ND	ND
Arsenic	1.4	MG/KG	4.38	2.04	<1.40
Beryllium	.035	MG/KG	ND	ND	ND
Cadmium	.34	MG/KG	ND	ND	ND
Chromium	.3	MG/KG	ND	ND	<0.30
Copper	.76	MG/KG	0.88	2.19	<0.76
Iron	1.3	MG/KG	1.40	1.99	3.57
Lead	2.5	MG/KG	ND	ND	ND
Manganese	.23	MG/KG	ND	ND	ND
Mercury	.03	MG/KG	0.036	0.364	0.158
Nickel	.79	MG/KG	ND	ND	ND
Selenium	.43	MG/KG	0.217	0.287	0.240
Silver	.62	MG/KG	ND	ND	ND
Thallium	5.7	MG/KG	ND	ND	ND
Tin	4.6	MG/KG	ND	ND	ND
Zinc	.58	MG/KG	3.07	3.41	3.69
Total Solids	.4	WT%	19.5	23.4	21.8

nd= not detected

NA= not analyzed

NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
 TISSUE - Chlorinated Pesticides
 From 01-JAN-2002 To 31-DEC-2002

FISH - Lipids & Total Solids

Tissue	Analyte	MDL	Units	SD-7 2002 Avg	SD-8 2002 Avg	SD-9 2002 Avg	SD-10 2002 Avg	SD-11 2002 Avg	SD-12 2002 Avg
Liver	Lipids	.005	WT%	21.8	26.8	24.1	32.1	30.9	27.0
Liver	Total Solids	.4	WT%	44.9	45.1	40.5	52.2	47.4	50.3
Muscle	Lipids	.005	WT%	0.30	0.32	0.26	0.71	0.68	0.85
Muscle	Total Solids	.4	WT%	20.3	19.9	20.5	21.0	21.0	20.3
		SD-13 2002 Avg	SD-14 2002 Avg	RF-1 2002 Avg	RF-2 2002 Avg				
Liver	Lipids	.005	WT%	26.9	37.0	20.6	23.8		
Liver	Total Solids	.4	WT%	46.5	54.7	46.4	47.1		
Muscle	Lipids	.005	WT%	0.42	0.47	1.23	1.62		
Muscle	Total Solids	.4	WT%	19.9	19.5	23.4	22.1		

ND= not detected

NA= not analyzed

NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL FISH LIVER - Chlorinated Pesticides
From 01-JAN-2002 To 31-DEC-2002

FISH LIVER

Analyte	MDL	Units	SD-7	SD-8	SD-9	SD-10	SD-11
			2002	2002	2002	2002	2002
			Avg	Avg	Avg	Avg	Avg
Hexachlorobenzene	13.3	UG/KG	<13.3	E2.7	<13.3	E2.5	<13.3
BHC, Gamma isomer	100	UG/KG	ND	ND	ND	ND	ND
Heptachlor	20	UG/KG	ND	ND	ND	ND	ND
Aldrin	133	UG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	20	UG/KG	ND	ND	ND	ND	ND
o,p-DDE	13.3	UG/KG	E13.4	<13.3	<13.3	<13.3	<13.3
Alpha Endosulfan	133	UG/KG	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3
Trans Nonachlor	20	UG/KG	<20.0	<20.0	<20.0	E8.4	<20.0
p,p-DDE	13.3	UG/KG	868.0	415.0	525.0	447.0	947.0
Dieldrin	20	UG/KG	ND	ND	ND	<20.0	ND
o,p-DDD	13.3	UG/KG	<13.3	ND	ND	ND	ND
Endrin	20	UG/KG	ND	ND	ND	<20.0	ND
o,p-DDT	13.3	UG/KG	<13.3	<13.3	<13.3	ND	<13.3
p,p-DDD	13.3	UG/KG	<13.3	E6.4	<13.3	<13.3	<13.3
p,p-DDT	13.3	UG/KG	<13.3	<13.3	E17.9	E19.2	E14.6
Mirex	13.3	UG/KG	ND	ND	ND	ND	ND
			SD-12	SD-13	SD-14	SD-17	SD-18
			2002	2002	2002	2002	2002
			Avg	Avg	Avg	Avg	Avg
Hexachlorobenzene	13.3	UG/KG	E2.7	E3.4	E4.3	<13.3	<13.3
BHC, Gamma isomer	100	UG/KG	ND	ND	ND	ND	ND
Heptachlor	20	UG/KG	ND	ND	ND	ND	ND
Aldrin	133	UG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	20	UG/KG	ND	ND	ND	ND	ND
o,p-DDE	13.3	UG/KG	E34.3	<13.3	<13.3	<13.3	<13.3
Alpha Endosulfan	133	UG/KG	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3
Trans Nonachlor	20	UG/KG	<20.0	<20.0	<20.0	<20.0	<20.0
p,p-DDE	13.3	UG/KG	2820.0	818.0	363.0	426.0	472.0
Dieldrin	20	UG/KG	ND	ND	ND	ND	ND
o,p-DDD	13.3	UG/KG	ND	ND	ND	ND	ND
Endrin	20	UG/KG	ND	ND	ND	ND	ND
o,p-DDT	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3
p,p-DDD	13.3	UG/KG	E49.9	<13.3	E5.9	E7.0	<13.3
p,p-DDT	13.3	UG/KG	E14.8	<13.3	<13.3	<13.3	<13.3
Mirex	13.3	UG/KG	ND	ND	ND	ND	ND

nd= not detected

NA= not analyzed

NS= not sampled

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL FISH LIVER - Chlorinated Pesticides
From 01-JAN-2002 To 31-DEC-2002

FISH LIVER

Analyte	MDL	Units	SD-19 2002 Avg	SD-20 2002 Avg	SD-21 2002 Avg	RF-1 2002 Avg	RF-2 2002 Avg
Hexachlorobenzene	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	E2.9
BHC, Gamma isomer	100	UG/KG	ND	ND	ND	ND	ND
Heptachlor	20	UG/KG	ND	ND	ND	ND	ND
Aldrin	133	UG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	20	UG/KG	ND	ND	ND	ND	ND
o,p-DDE	13.3	UG/KG	15.7	<13.3	<13.3	<13.3	E5.1
Alpha Endosulfan	133	UG/KG	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	13.3	UG/KG	<13.3	<13.3	ND	<13.3	<13.3
Trans Nonachlor	20	UG/KG	<20.0	<20.0	<20.0	<20.0	E8.6
p,p-DDE	13.3	UG/KG	527.0	690.0	396.0	794.0	424.0
Dieldrin	20	UG/KG	ND	ND	ND	ND	ND
o,p-DDD	13.3	UG/KG	<13.3	ND	<13.3	ND	46.7
Endrin	20	UG/KG	ND	ND	ND	ND	ND
o,p-DDT	13.3	UG/KG	<13.3	<13.3	ND	<13.3	<13.3
p,p-DDD	13.3	UG/KG	E13.7	<13.3	E7.8	<13.3	<13.3
p,p-DDT	13.3	UG/KG	<13.3	<13.3	<13.3	E18.9	E20.6
Mirex	13.3	UG/KG	ND	ND	ND	ND	ND

nd= not detected

NA= not analyzed

NS= not sampled

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL FISH MUSCLE - Chlorinated Pesticides

From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	2002 Avg	2002 Avg	2002 Avg	2002 Avg	2002 Avg
Hexachlorobenzene	1.33	UG/KG	<1.3	<1.3	<1.3	E2.6	<1.3
BHC, Gamma isomer	3.33	UG/KG	ND	ND	ND	ND	ND
Heptachlor	2	UG/KG	ND	<2.0	ND	ND	ND
Aldrin	2	UG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	2	UG/KG	ND	ND	ND	ND	ND
o,p-DDE	1.33	UG/KG	ND	ND	ND	ND	ND
Alpha Endosulfan	6.67	UG/KG	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	1.33	UG/KG	ND	ND	ND	ND	ND
Trans Nonachlor	2	UG/KG	ND	ND	ND	ND	<2.0
p,p-DDE	1.33	UG/KG	E3.4	E3.1	E3.2	E6.8	10.1
Dieldrin	1.33	UG/KG	ND	ND	ND	ND	ND
o,p-DDD	1.33	UG/KG	ND	ND	ND	ND	ND
Endrin	1.33	UG/KG	ND	ND	ND	ND	ND
o,p-DDT	1.33	UG/KG	ND	ND	ND	ND	ND
p,p-DDD	1.33	UG/KG	ND	ND	<1.3	<1.3	<1.3
p,p-DDT	1.33	UG/KG	ND	ND	<1.3	<1.3	<1.3
Mirex	1.33	UG/KG	ND	ND	ND	ND	ND
			SD-12 2002	SD-13 2002	SD-14 2002	RF-1 2002	RF-2 2002
Analyte	MDL	Units	Avg	Avg	Avg	Avg	Avg
Hexachlorobenzene	1.33	UG/KG	<1.3	<1.3	<1.3	<1.3	<1.3
BHC, Gamma isomer	3.33	UG/KG	ND	ND	ND	ND	ND
Heptachlor	2	UG/KG	ND	ND	ND	ND	ND
Aldrin	2	UG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	2	UG/KG	ND	ND	ND	ND	ND
o,p-DDE	1.33	UG/KG	E1.9	ND	ND	<1.3	<1.3
Alpha Endosulfan	6.67	UG/KG	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	1.33	UG/KG	ND	ND	ND	<1.3	ND
Trans Nonachlor	2	UG/KG	<2.0	ND	ND	<2.0	<2.0
p,p-DDE	1.33	UG/KG	145.0	7.5	E2.2	26.4	E24.7
Dieldrin	1.33	UG/KG	ND	<1.3	ND	ND	ND
o,p-DDD	1.33	UG/KG	ND	ND	ND	ND	ND
Endrin	1.33	UG/KG	ND	<1.3	ND	ND	ND
o,p-DDT	1.33	UG/KG	ND	ND	ND	ND	ND
p,p-DDD	1.33	UG/KG	E2.5	<1.3	ND	<1.3	<1.3
p,p-DDT	1.33	UG/KG	<1.3	<1.3	ND	<1.3	<1.3
Mirex	1.33	UG/KG	ND	ND	ND	ND	ND

nd= not detected

NA= not analyzed

NS= not sampled

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL FISH MUSCLE - Chlorinated Pesticides

From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	Avg
Hexachlorobenzene	1.33	UG/KG	<1.3
BHC, Gamma isomer	3.33	UG/KG	ND
Heptachlor	2	UG/KG	ND
Aldrin	2	UG/KG	ND
Heptachlor epoxide	2	UG/KG	ND
o,p-DDE	1.33	UG/KG	ND
Alpha Endosulfan	6.67	UG/KG	ND
Alpha (cis) Chlordane	1.33	UG/KG	ND
Trans Nonachlor	2	UG/KG	<2.0
p,p-DDE	1.33	UG/KG	22.0
Dieldrin	1.33	UG/KG	ND
o,p-DDD	1.33	UG/KG	ND
Endrin	1.33	UG/KG	ND
o,p-DDT	1.33	UG/KG	ND
p,p-DDD	1.33	UG/KG	<1.3
p,p-DDT	1.33	UG/KG	<1.3
Mirex	1.33	UG/KG	ND

nd= not detected

NA= not analyzed

NS= not sampled

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

POINT LOMA WASTEWATER TREATMENT PLANT
 FISH LIVER - Analysis of Poly Aromatic Hydrocarbon (PAH)
 From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	SD-7 2002	SD-8 2002	SD-9 2002	SD-10 2002	SD-11 2002	SD-12 2002
			Avg	Avg	Avg	Avg	Avg	Avg
Acenaphthene	35.8	UG/KG	ND	ND	ND	ND	ND	ND
Acenaphthylene	17.9	UG/KG	ND	ND	ND	ND	ND	ND
Anthracene	16.8	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[A]anthracene	38.4	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[Al]pyrene	11.6	UG/KG	ND	ND	ND	ND	ND	ND
3,4-benzo(B)fluoranthene	21.5	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[e]pyrene	14.9	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[G,H,I]perylene	22.2	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[K]fluoranthene	12.3	UG/KG	ND	ND	ND	ND	ND	ND
Biphenyl	28.1	UG/KG	ND	ND	ND	ND	ND	ND
Chrysene	16.7	UG/KG	ND	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	39.5	UG/KG	ND	ND	ND	ND	ND	ND
2,6-dimethylnaphthalene	20.7	UG/KG	ND	ND	ND	ND	ND	ND
Fluoranthene	18.3	UG/KG	ND	ND	ND	ND	ND	ND
Fluorene	53.8	UG/KG	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	10.5	UG/KG	ND	ND	ND	ND	ND	ND
1-methylnaphthalene	27.7	UG/KG	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	13.5	UG/KG	ND	ND	ND	ND	ND	ND
1-methylphenanthrene	12.4	UG/KG	ND	ND	ND	ND	ND	ND
Naphthalene	24	UG/KG	ND	ND	ND	ND	ND	ND
Perylene	19	UG/KG	ND	ND	ND	ND	ND	ND
Phenanthrene	31.3	UG/KG	ND	ND	ND	ND	ND	<31.3
Pyrene	23.1	UG/KG	ND	ND	ND	ND	ND	ND
2,3,5-trimethylnaphthalene	19.4	UG/KG	ND	ND	ND	ND	ND	ND

Analyte	MDL	Units	SD-13 2002	SD-14 2002	SD-17 2002	SD-18 2002	SD-19 2002	SD-20 2002
			Avg	Avg	Avg	Avg	Avg	Avg
Acenaphthene	35.8	UG/KG	ND	ND	ND	ND	ND	ND
Acenaphthylene	17.9	UG/KG	ND	ND	ND	ND	ND	ND
Anthracene	16.8	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[A]anthracene	38.4	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[Al]pyrene	11.6	UG/KG	ND	ND	ND	ND	ND	ND
3,4-benzo(B)fluoranthene	21.5	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[e]pyrene	14.9	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[G,H,I]perylene	22.2	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[K]fluoranthene	12.3	UG/KG	ND	ND	ND	ND	ND	ND
Biphenyl	28.1	UG/KG	ND	ND	ND	ND	ND	ND
Chrysene	16.7	UG/KG	ND	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	39.5	UG/KG	ND	ND	ND	ND	ND	ND
2,6-dimethylnaphthalene	20.7	UG/KG	ND	ND	ND	ND	ND	ND
Fluoranthene	18.3	UG/KG	ND	ND	ND	ND	ND	ND
Fluorene	53.8	UG/KG	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	10.5	UG/KG	ND	ND	ND	ND	ND	ND
1-methylnaphthalene	27.7	UG/KG	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	13.5	UG/KG	ND	ND	ND	ND	ND	ND
1-methylphenanthrene	12.4	UG/KG	ND	ND	ND	ND	ND	ND
Naphthalene	24	UG/KG	ND	ND	ND	ND	ND	ND
Perylene	19	UG/KG	ND	ND	ND	ND	ND	ND
Phenanthrene	31.3	UG/KG	ND	ND	ND	ND	ND	ND
Pyrene	23.1	UG/KG	ND	ND	ND	ND	ND	ND
2,3,5-trimethylnaphthalene	19.4	UG/KG	ND	ND	ND	ND	ND	ND

nd= not detected

NA= not analyzed

NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
 FISH LIVER - Analysis of Poly Aromatic Hydrocarbon (PAH)
 From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	SD-21 2002	RF-1 2002	RF-2 2002
			Avg	Avg	Avg
Acenaphthene	35.8	UG/KG	ND	ND	ND
Acenaphthylene	17.9	UG/KG	ND	ND	ND
Anthracene	16.8	UG/KG	ND	ND	ND
Benzo[A]anthracene	38.4	UG/KG	ND	ND	ND
Benzo[A]pyrene	11.6	UG/KG	ND	ND	ND
3,4-benzo(B)fluoranthene	21.5	UG/KG	ND	ND	ND
Benzo[e]pyrene	14.9	UG/KG	ND	ND	ND
Benzo[G,H,I]perylene	22.2	UG/KG	ND	ND	ND
Benzo[K]fluoranthene	12.3	UG/KG	ND	ND	ND
Biphenyl	28.1	UG/KG	ND	ND	ND
Chrysene	16.7	UG/KG	ND	ND	ND
Dibenzo(A,H)anthracene	39.5	UG/KG	ND	ND	ND
2,6-dimethylnaphthalene	20.7	UG/KG	ND	ND	ND
Fluoranthene	18.3	UG/KG	ND	ND	ND
Fluorene	53.8	UG/KG	ND	ND	ND
Indeno(1,2,3-CD)pyrene	10.5	UG/KG	ND	ND	ND
1-methylnaphthalene	27.7	UG/KG	ND	ND	ND
2-methylnaphthalene	13.5	UG/KG	ND	ND	ND
1-methylphenanthrene	12.4	UG/KG	ND	ND	ND
Naphthalene	24	UG/KG	ND	ND	ND
Perylene	19	UG/KG	ND	ND	ND
Phenanthrene	31.3	UG/KG	ND	ND	ND
Pyrene	23.1	UG/KG	ND	ND	ND
2,3,5-trimethylnaphthalene	19.4	UG/KG	ND	ND	ND

nd= not detected

NA= not analyzed

NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
 ANNUAL FISH MUSCLE - Analysis of Poly Aromatic Hydrocarbon (PAH)
 From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	SD-7 2002	SD-8 2002	SD-9 2002	SD-10 2002	SD-11 2002	SD-12 2002
			Avg	Avg	Avg	Avg	Avg	Avg
Acenaphthene	17.4	UG/KG	ND	ND	ND	ND	ND	ND
Acenaphthylene	9.7	UG/KG	ND	ND	ND	ND	ND	ND
Anthracene	21.2	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[A]anthracene	12.4	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[Al]pyrene	16.1	UG/KG	ND	ND	ND	ND	ND	ND
3,4-benzo(B)fluoranthene	7.6	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[e]pyrene	11	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[G,H,I]perylene	10.2	UG/KG	ND	ND	ND	ND	ND	ND
Benzo[K]fluoranthene	15.8	UG/KG	ND	ND	ND	ND	ND	ND
Biphenyl	12.3	UG/KG	ND	ND	ND	ND	ND	ND
Chrysene	12.2	UG/KG	ND	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	11.9	UG/KG	ND	ND	ND	ND	ND	ND
2,6-dimethylnaphthalene	16	UG/KG	ND	ND	ND	ND	ND	ND
Fluoranthene	10.8	UG/KG	ND	ND	ND	ND	ND	ND
Fluorene	15.1	UG/KG	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	14.1	UG/KG	ND	ND	ND	ND	ND	ND
1-methylnaphthalene	20.2	UG/KG	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	13.7	UG/KG	ND	ND	ND	ND	ND	ND
1-methylphenanthrene	8.1	UG/KG	ND	ND	ND	ND	ND	ND
Naphthalene	9.2	UG/KG	ND	ND	ND	ND	ND	ND
Perylene	14.3	UG/KG	ND	ND	ND	ND	ND	ND
Phenanthrene	9.9	UG/KG	ND	ND	ND	ND	ND	ND
Pyrene	9.4	UG/KG	ND	ND	ND	ND	ND	ND
2,3,5-trimethylnaphthalene	19.2	UG/KG	ND	ND	ND	ND	ND	ND

Analyte	MDL	Units	SD-13 2002	SD-14 2002	RF-1 2002	RF-2 2002	RF-4 2002
			Avg	Avg	Avg	Avg	Avg
Acenaphthene	17.4	UG/KG	ND	ND	ND	ND	ND
Acenaphthylene	9.7	UG/KG	ND	ND	ND	ND	ND
Anthracene	21.2	UG/KG	ND	ND	ND	ND	ND
Benzo[A]anthracene	12.4	UG/KG	ND	ND	ND	ND	ND
Benzo[Al]pyrene	16.1	UG/KG	ND	ND	ND	ND	ND
3,4-benzo(B)fluoranthene	7.6	UG/KG	ND	ND	ND	ND	ND
Benzo[e]pyrene	11	UG/KG	ND	ND	ND	ND	ND
Benzo[G,H,I]perylene	10.2	UG/KG	ND	ND	ND	ND	ND
Benzo[K]fluoranthene	15.8	UG/KG	ND	ND	ND	ND	ND
Biphenyl	12.3	UG/KG	ND	ND	ND	ND	ND
Chrysene	12.2	UG/KG	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	11.9	UG/KG	ND	ND	ND	ND	ND
2,6-dimethylnaphthalene	16	UG/KG	ND	ND	ND	ND	ND
Fluoranthene	10.8	UG/KG	ND	ND	ND	ND	ND
Fluorene	15.1	UG/KG	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	14.1	UG/KG	ND	ND	ND	ND	ND
1-methylnaphthalene	20.2	UG/KG	ND	ND	ND	ND	ND
2-methylnaphthalene	13.7	UG/KG	ND	ND	ND	ND	ND
1-methylphenanthrene	8.1	UG/KG	ND	ND	ND	ND	ND
Naphthalene	9.2	UG/KG	ND	ND	ND	ND	ND
Perylene	14.3	UG/KG	ND	ND	ND	ND	ND
Phenanthrene	9.9	UG/KG	ND	ND	ND	ND	ND
Pyrene	9.4	UG/KG	ND	ND	ND	ND	ND
2,3,5-trimethylnaphthalene	19.2	UG/KG	ND	ND	ND	ND	ND

ND= not detected

NA= not analyzed

NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
 ANNUAL FISH LIVER - Analysis of Poly Chlorinated Biphenyls
 From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	SD-7	SD-8	SD-9	SD-10	SD-11	SD-12	SD-13
			2002	2002	2002	2002	2002	2002	2002
PCB 18	20	UG/KG	ND						
PCB 28	13.3	UG/KG	ND	<13.3	<13.3	ND	ND	<13.3	<13.3
PCB 49	13.3	UG/KG	ND	<13.3	<13.3	ND	<13.3	<13.3	<13.3
PCB 37	13.3	UG/KG	ND	ND	<13.3	ND	ND	ND	ND
PCB 70	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 101	13.3	UG/KG	<13.3	E22.3	E14.3	E9.5	E14.8	E20.8	E15.6
PCB 119	13.3	UG/KG	<13.3	<13.3	<13.3	ND	<13.3	<13.3	<13.3
PCB 87	13.3	UG/KG	<13.3	E5.9	<13.3	<13.3	E3.7	<13.3	<13.3
PCB 110	13.3	UG/KG	<13.3	E21.9	<13.3	E6.6	<13.3	E16.2	<13.3
PCB 151	13.3	UG/KG	<13.3	<13.3	<13.3	E4.9	<13.3	<13.3	<13.3
PCB 77	13.3	UG/KG	ND	ND	<13.3	ND	ND	ND	ND
PCB 149	13.3	UG/KG	<13.3	E17.1	E14.2	E5.9	<13.3	<13.3	<13.3
PCB 123	13.3	UG/KG	<13.3	<13.3	<13.3	E2.4	<13.3	<13.3	<13.3
PCB 118	13.3	UG/KG	E29.2	E55.5	E32.3	19.8	41.8	E48.2	E42.7
PCB 114	13.3	UG/KG	ND						
PCB 153/168	13.3	UG/KG	E63.0	109.0	E81.3	45.8	98.8	74.2	91.3
PCB 105	13.3	UG/KG	<13.3	E16.9	<13.3	E6.4	<13.3	E14.0	<13.3
PCB 138	13.3	UG/KG	E43.3	E76.2	E52.9	28.8	64.3	E52.3	65.5
PCB 158	13.3	UG/KG	<13.3	<13.3	<13.3	E2.3	E5.0	<13.3	E4.7
PCB 187	13.3	UG/KG	E26.3	E40.9	E34.4	E18.3	E39.3	E25.2	E40.1
PCB 183	13.3	UG/KG	<13.3	<13.3	<13.3	E6.1	E14.7	<13.3	E14.1
PCB 126	13.3	UG/KG	ND	ND	<13.3	ND	ND	ND	ND
PCB 128	13.3	UG/KG	<13.3	E16.1	<13.3	E6.1	<13.3	<13.3	<13.3
PCB 167	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	E4.1	<13.3	<13.3
PCB 177	13.3	UG/KG	<13.3	<13.3	<13.3	E4.5	<13.3	<13.3	<13.3
PCB 156	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	E6.2
PCB 157	13.3	UG/KG	<13.3	<13.3	<13.3	ND	<13.3	<13.3	<13.3
PCB 180	13.3	UG/KG	E30.2	E45.1	E37.1	E23.2	50.0	E36.0	E45.5
PCB 170	13.3	UG/KG	<13.3	15.3	14.2	<13.3	18.5	<13.3	<13.3
PCB 169	13.3	UG/KG	ND						
PCB 189	13.3	UG/KG	ND	<13.3	<13.3	ND	<13.3	ND	<13.3
PCB 194	13.3	UG/KG	<13.3	<13.3	<13.3	E5.8	E14.1	E8.1	E15.4
PCB 206	13.3	UG/KG	<13.3	<13.3	E8.1	E4.2	<13.3	E5.5	<13.3

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS- MS

nd= not detected
 NA= not analyzed
 NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL FISH LIVER - Analysis of Poly Chlorinated Biphenyls
From 01-JAN-2002 To 31-DEC-2002

Analyte	MDL	Units	SD-14	SD-17	SD-18	SD-19	SD-20	SD-21	RF-1
			2002	2002	2002	2002	2002	2002	2002
			Avg						
PCB 18	20	UG/KG	ND						
PCB 28	13.3	UG/KG	<13.3	ND	ND	<13.3	ND	ND	<13.3
PCB 49	13.3	UG/KG	<13.3	ND	ND	<13.3	ND	ND	<13.3
PCB 37	13.3	UG/KG	ND						
PCB 70	13.3	UG/KG	<13.3	<13.3	ND	<13.3	<13.3	<13.3	<13.3
PCB 101	13.3	UG/KG	E7.3	<13.3	<13.3	<13.3	<13.3	E8.3	E20.8
PCB 119	13.3	UG/KG	<13.3	<13.3	ND	ND	ND	ND	<13.3
PCB 87	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 110	13.3	UG/KG	E5.7	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 151	13.3	UG/KG	E3.1	<13.3	<13.3	<13.3	<13.3	<13.3	E6.8
PCB 77	13.3	UG/KG	<13.3	ND	ND	ND	ND	ND	ND
PCB 149	13.3	UG/KG	E3.8	<13.3	<13.3	<13.3	<13.3	<13.3	E16.2
PCB 123	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 118	13.3	UG/KG	E13.5	E17.1	E15.1	E16.4	E22.3	E20.8	E33.4
PCB 114	13.3	UG/KG	ND	<13.3	ND	ND	ND	ND	ND
PCB 153/168	13.3	UG/KG	26.8	E47.9	E44.1	E36.8	E61.2	E50.2	73.8
PCB 105	13.3	UG/KG	E4.6	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 138	13.3	UG/KG	E17.5	E27.3	E27.1	E23.9	E35.7	E32.3	47.1
PCB 158	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	E3.8
PCB 187	13.3	UG/KG	<13.3	E21.0	E20.3	E17.3	E25.8	E22.7	E29.3
PCB 183	13.3	UG/KG	E3.4	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 126	13.3	UG/KG	<13.3	<13.3	ND	ND	ND	ND	ND
PCB 128	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 167	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 177	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	E5.0
PCB 156	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 157	13.3	UG/KG	<13.3	<13.3	<13.3	ND	<13.3	<13.3	<13.3
PCB 180	13.3	UG/KG	<13.3	E25.5	E25.2	E17.6	E29.9	E23.8	E35.9
PCB 170	13.3	UG/KG	ND	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 169	13.3	UG/KG	ND	ND	ND	<13.3	ND	ND	ND
PCB 189	13.3	UG/KG	<13.3	<13.3	ND	ND	ND	ND	ND
PCB 194	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
PCB 206	13.3	UG/KG	E3.3	E5.0	E5.5	E4.7	E4.4	E4.8	E6.8

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS- MS

nd= not detected
NA= not analyzed
NS= not sampled